

## MOSQUITO BEHAVIOR OF MANSONIA AND ANOPHELES AND ITS RELATIONSHIP WITH THE FILARIASIS DISEASE IN TANIWEL TIMUR DISTRICT AND TANIWEL, SERAM BARAT REGENCY

Johanis F Rehena and Muhammad Nur Matdoan

Biology Education Study Program, Pattimura University Ambon

Email: @yahoo.co.id

**Abstract.** *Mansonia* mosquitoes are in endemic forest and swamp areas, dirty environments and unused fish farming areas, *Mansonia* mosquitoes are aggressive and suck blood when humans are at night, outside the home. *Anopheles* actively seeks blood during illness and at night. This research uses survey and cross sectional research, it discusses to study mosquitoes, the density of mosquitoes *mansonia* and *anopheles*, as well as looking at the development of disease (prevalence) of filariasis. The population in this study is the population and population of mosquito *mansonia* and *anopheles* in East Taniwel and Taniwel Districts. Filariasis in Taniwel and East Taniwel Sub-districts, West Seram District was reported in local health centers of around 15 people. The outbreak of filariasis in Taniwel District around 2010-2019. *Mansonia* bleeds people at home when sick at 18: 00-18: 45. While outside the house at night 20: 00-20: 45. While *Anopheles* mosquitoes bite humans, at dusk and at night at 16.00-24.00, The peak is 02.00-03.00. The density of *mansonia* mosquitoes in Sohuwe Village, 4.00 - 5.85, Lumalatal 5.00 - 6.60 and Maloang 4.00-5.50 (moderate), *Anopheles* in Sohuwe 7.00-9.85, Lumalatal 5.89- 6.82, Maloang 5.00-6.50 (high). The prevalence of filariasis in Sohuwe 0.66, Lumlat 0.88. and Maloang 1.54. There is a relationship between attitudes and community relations with filariasis.

**Keywords:** *Mansonia* Mosquito Disease, *Anopheles*, Filariasis

### 1. Introduction

Based on a blood survey conducted by the Department of Health in 2005 there were six districts in North Sumatra that were declared endemic filariasis namely: South Tapanuli (3%), Nias (2.2%), Asahan (2.1%), Deli Serdang (1.4 %), Serdang Bedagai (1.3%), and Labuhan Batu (1%), according to the provisions made by the World Health Organization (WHO), if the finger blood survey (SDJ) is above 1%, it means the area is already in the endemic category transmission of filariasis and meeting the requirements for mass treatment (North Sumatra Provincial Health Office, 2005) in (Pulungan et al., 2012).

*Mansonia* is associated with swamps, large rivers on the edge of the forest or in the forest, larvae and pupae are attached to their chifon on the roots, twigs of aquatic plants, such as water hyacinth, lotus, water spinach, and so on. *Mansonia* mosquitoes are in endemic forest and swamp areas, dirty environment and unused fish farming areas, *Mansonia* mosquitoes are aggressive and suck blood when humans are at night activities especially outside the home. *Anopheles* mosquito is the main vector of malaria and transmitted through bites Female *anopheles* that contain infective sporozoites. Where *Anopheles* mosquitoes live depends on the species, such as *Anopheles sundanicus* likes brackish water, shallow river mouths, fish ponds, and ditches. From the results of a bionomic survey, *Anopheles* sp mosquitoes in Kairatu Subdistrict and Taniwel Subdistrict, West Seram District found species of *Anopheles aconitus*, *Anopheles balanbacensis*, and *Anopheles subpictus* as vectors of malaria (Rehena, 2005).

The density of *Anopheles* sp mosquitoes from the results of a 2006 survey in Kairatu Sub-district, the value of the density of mosquitoes that contact with people at night, the man biting rate (MBR) of 0.9 in the coastal and mountainous regions is 0.8 (Rehena, 2006). The June-August 2007 survey results obtained an *Anopheles* larval density value of 7.3, while the density of adult mosquitoes man biting rate (MBR) 5.

Mosquitoes always need 3 places for survival, namely: a). blood-seeking behavior: mosquitoes in blood-seeking behavior are different, namely the *Culex* mosquito is active in the morning, afternoon, and in the evening or night. *Aedes* mosquitoes look for active blood during the day, and *Anopheles* mosquitoes actively search for blood during the evening and night. b). resting behavior: is the process of waiting for an egg to ripen and when the mosquito is still actively seeking blood, in the process mosquitoes usually break on the walls of the house. c). breeding behavior: Mosquitoes have the ability to choose a breeding or a place to breed with their needs, some are happy in brackish water, in clear water and some are happy in dirty water. Non-sanitary wastewater can be a medium for the propagation of pathogenic microorganisms (Pulungan, et al., 2012).

Filariasis is a disease caused by Nematode infection of the Filariodea Family, where adult worms live in fluid and lymphatic channels. Filarial worm infections can cause various clinical manifestations, including swelling (limfoedema) in the legs, venereal disease (hydrocele, chylocele and swelling of the testicles and penis) and recurrence of acute attacks, which are very painful and accompanied by fever. Most infected people do not experience symptoms of the disease, but in fact they have subclinical lymphatic damage and as many as 40% of them experience kidney damage, with proteinuria and haematuria (Rampengan, 1997).

Filarial worms are transmitted from mosquitoes. when mosquitoes infected by a number of larvae bite humans, the parasites will stick to human skin, where the parasites enter the body through the skin. The larvae move into lymphatic tissue and develop into worms within 6-12 months, causing damage and dilation of lymphatic vessels. Adult filaria lives for several years in the human body. During that time, they produced millions of immature microfilariae and circulated in the peripheral bloodstream and were swallowed by mosquitoes that bite infected humans. The larvae then develop in the mosquito's body before it becomes infected to humans. Geographical Distribution An estimated 120 million people in tropical and subtropical areas worldwide are infected with lymphatic filariasis. Among them, nearly 25 million men suffer from venereal disease (the most common being hydrocele) and nearly 15 million, mostly women, experience swelling in elephantiasis or feet and in Indonesia if there is no comprehensive treatment there will be 40 million citizens contact with elephantiasis (Irianto, 2014).

## 2. Research Methods

The form and diagnosis of lymphatic filariasis, although rarely causing death, lymphatic filariasis is a major cause of suffering and disability. More than 1.3 billion people in 72 countries and territories live in areas where they are at risk of becoming infected with the filaria parasite. Number of infections

$$\text{Prevalensi Rate (PR)} = \frac{\text{jumlah penderita lama/baru pada periode tertentu}}{\text{penduduk yang mempunyai resiko filariasis}} \times 100\%$$

(Chandra, 1995)

### Density of *Mansonia* and *Anopheles* Mosquitoes

$$\text{Rumus Kepadatan Nyamuk: MBR} = \frac{\text{jumlah nyamuk menggigit orang}}{\text{Jumlah waktu penangkapan} \left( \frac{\text{jam}}{\text{orang}} \right)}$$

$$\text{Rumus Kepadatan Larva :} = \frac{\text{jumlah larva yang didapat}}{\text{Jumlah Cidukan yang Dilakukan}}$$

$$\text{Kelimpahan Nisbi} = \frac{\text{jumlah individu nyamuk spesies tertentu yang tertangkap}}{\text{total spesies nyamuk yang tertangkap}} \times 100$$

$$\text{Frekwensi :} = \frac{\text{jumlah penangkapan diperolehnya nyamuk spesies tertentu}}{\text{Total jumlah penangkapan}}$$

$$\text{Angka Dominasi Spesies} = \text{Kelimpahan Nisbi} \times 100$$

$$\text{MHD} = \frac{\text{Jumlah spesies tertentu yang tertangkap}}{\text{Jumlah kolektor} \times 45/60 \times \text{jumlah waktu (jam) penangkapan}}$$

$$\text{Jumlah kolektor} \times 45/60 \times \text{jumlah waktu (jam) penangkapan}$$

The relationship between the behavior of mosquitoes with the causes of filariasis is done by Chi Square Test. Analyzes were performed with the SPSS program version 20.0.

### 3. Result and Discussion

#### a. Result

East Taniwel Subdistrict which consists of 15 Villages and Taniwel 19 Villages of West Seram District consisting of 92 Villages and 112 Hamlets with a total population in 2013 of 178.781 people with an annual population growth rate of around 1% and population density (soul / km<sup>2</sup>) ranged from 42. The number of residents per year in the Taniwel sub-district of West Seram Regency in 2010 - 2015 from two villages namely Sohuwe numbered 409-909 people, Lumalatal numbered 312-570 people.

Filariasis in Taniwel and East Taniwel Subdistricts of West Seram District was reported to the local health center by around 15 people. The outbreak of filariasis in Taniwel District around 2010-2019. Data obtained from the East Taniwel Health Center and West Seram District Health Office are about 15 people. The discovery of 15 people including old and new sufferers who were also researchers found in certain villages.

**Table 1. Mansonia Mosquito Behavior**

Perilaku	Taniwel Timur / Taniwel
-Mengisap darah orang di dalam rumah.	-Pada pukul 18:00–18:45
pada waktu sore	-Pukul 20:00–20:45
-Sedangkan di luar rumah pada waktu malam	
-Perilaku Makan	-Menggigit manusia, waktu malam hari mulai jam 16.00-02.00, puncaknya: 20.00-04.00. WIT

-Perilaku Berkembang Biak	-Meletakan telur di kolam air bersifat cekung, di lubang-lubang pohon, dan di air payau.
-Perilaku Istirahat/tidur	- Di dalam rumah pada pakain berwarna hitam. - Semak-semak pepohonan
-Spesies	- <i>Mansonia uniformis</i>

**Table 2. Mansonian Larva Behavior**

Perilaku	Taniwel Timur / Taniwel
-Keberadaan/lokasi Larva/kontainer	- Kolam air yang ada tumbuhan, larva menempel pada akar tumbuhan untuk mencari udara, seperti kangkung, teratai, enjeng gondok
-Jumlah Larva	- 200 ekor
-Spesies Larva	- <i>Mansonia uniformis</i>

Mansonia species are associated with swamps, large rivers on the edge of the forest or in the forest, larvae and pupae attach to their chiffon on the roots of twigs of aquatic plants, such as water hyacinth, lotus, kale, and so on (Fahmi, N. 2016). Mansonia species are in endemic forest and swamp areas, dirty environments and unused fish farming areas. Mansonia species are aggressive and suck blood when humans are at night, especially outside the home. Filariasis is a disease that is not easily transmitted. Filariasis is a disease transmitted by mosquitoes as vectors. The type of mosquito that can act as a vector filariasis is influenced by the type of worm that causes filaria. *Brugia* spp is generally transmitted by mansonia spp species and anopheles spp species. Mansonia larvae species depend on plants that grow in the waters of Lake Tapala, East Taniwel District.

**Table 1.3. Anopheles Mosquito Behavior**

Perilaku	Taniwel Timur/ Taniwel
Perilaku Makan/mengigit	- Menggigit manusia, waktu senja dan malam hari jam 16.00-24.00, Puncaknya: 02.00-03.00. WIT
Perilaku Berkembang Biak	- Meletakan telur di kolam air, air yang pada perahu, bak air, buah kelapa yang ada air hujan
Perilaku Istirahat /tidur	- Di luar rumah (pohon) - Di dalam rumah (Gantungan pakaian berwarna hitam/tali pakain)
Spesies	- <i>Anopheles sundaicus</i>

**Table 4. Anopheles Larva Behavior**

Perilaku	Taniwel Timur/ Taniwel
Keberadaan/lokasi Larva/kontainer	- Kolam air tempat injak binatang - Air hujan dalam perahu - Bak air di luar rumah - Buah kelapa yang terisi air - Sawah
Jumlah Larva	- 200 ekor

Spesies Larva	- <i>Anopheles sundaicus</i> - <i>Anopheles aconitus</i>
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Where to lay eggs, mosquito habitat can be divided into container habitats and ground water habitats (Qomariah, 2004). Container habitats consist of natural containers and artificial containers. Groundwater Puddle is a puddle of water that has soil in the bottom. (Rehena, 2005) also states that species that have groundwater inundation habitats are *Anopheles* sp. *Anopheles* mosquito breeding behavior is carried out after sucking the blood of prey or host until the eggs mature in the stomach and ready to reproduce, ie laying eggs in the water environment. The Ministry of Health (1987) states that breed behavior also varies according to species and breeding places where *anopheles* mosquito species lay their eggs both in direct sunlight and in shady places.

Community attitudes and actions are caused by subjective norms, namely our beliefs about what others remind us to do, attitudes toward behavior along with subjective norms form an intention or intention to behave in a certain way. Broad habits, of course, can not only be reviewed in relation to human attitudes. Habits from the standpoint of motivation theory, from learning theory and from other points of view will give different emphasis. The traditional approach to persuasion generally includes several elements, namely, the source as a communication that carries messages to those whose attitudes are to be changed (Azwar, S. 1995). The traditional approach to persuasion, although proven to be very useful, does not discuss at all why people change their attitudes when confronted with persuasive messages a modern approach to trying with a cognitive perspective.

**Table 5. Attitudes and actions to eradicate mosquitoes are used by the community.**

Jenis Obat	Sohuwe	Lumalata	Maloang	Jumlah	Presentase %
Tidak pakai	14	20	11	45	50
Pakai Baigon dan lainnya	1	24	20	45	50
Jumlah				90	100

**Table 6. Attitudes and Actions of Hanging Clothes Inside the Home in the Community.**

Mengantung	Sohuwe	Lumalata	Maloang	Jumlah	Presentase %
Tdk Menggantung Pakaian	13	10	14	37	41,1
Mengantung pakaian hitam	2	24	27	53	58,9
Jumlah				90	100

**Table 7. Attitudes and Actions of Traveling Outside the Home of the Community.**

Bepergian	Sohuwe	Lumalata	Maloang	Jumlah	%
Tidak Bepergian ke luar rumah	7	23	20	50	55,6
Bepergian ke luar rumah	8	18	14	40	44,4
Jumlah				90	100

**Table 8. Filariasis drug used by the community**

Jenis Obat Filariasis	Sohuwe	Lumalata	Maloang	Jumlah	Presentase %
Pakai Obat Dietil Carbamazepine (DEC),	6	25	35	66	73,3
Tidak Pakai Obat (DEC)	9	9	6	24	26,7
Jumlah				90	100

#### - Density of Larva Mansonia

$$\text{Rumus Kepadatan Larva : } \frac{\text{jumlah larva yang didapat}}{\text{Jumlah Cidukan yang Dilakukan}}$$

Kepadatan	Sohuwe	Lumalata	Maloang
Larva	4.33-6.00	5.00 - 6.33	4.00- 6.20
Keterangan	Sedang	Sedang	Sedang

#### - The density of Mansonian Mosquitoes

$$\text{Rumus Kepadatan Nyamuk: MBR } \frac{\text{jumlah nyamuk menggigit orang}}{\text{Jumlah waktu penangkapan } (\frac{\text{jam}}{\text{orang}})}$$

Kepadatan	Sohuwe	Lumalata	Maloang
Nyamuk	4.00- 5.85	5.00 - 6.60	4.00- 5.50
Keterangan	Sedang	Sedang	Sedang

Mansonia species are Malaysia brugia vectors. In eastern Indonesia, Mansonia and Anopheles barbirostris are the most important vectors of filariasis. Mansonian species can be Brugia malayi vectors of non-complete subperiodic types. While Anopheles barbirostris is an important vector. Malaysia Brugia is easily found in the islands of South Maluku (MOH RI, 2005). When alighting Mansonia sp does not form an angle of 90°. or the bias is said to be parallel to the perch. Morphologically this mosquito has a large and long body shape, asymmetrical wing shape, wing spots of body color consisting of black or brown mixed with white. Mansonia mosquitoes are in endemic forest and swamp areas, dirty environments and unused fish farming

areas. *Mansonia* mosquitoes are aggressive and suck blood when humans are in night activities, especially outside the home (Fahmi. N. 2016).

#### - *Anopheles* Larva Density

$$\text{Rumus Kepadatan Larva} : \frac{\text{jumlah larva yang didapat}}{\text{Jumlah Cidukan yang Dilakukan}}$$

Kepadatan	Sohuwe	Lumalata	Maloang
Larva	8.33-10.00	6.00 - 7.33	6.00- 7.00
Ket	Tinggi	Tinggi	Tinggi

#### - *Anopheles* Mosquito Density

$$\text{Rumus Kepadatan Nyamuk: MBR} \frac{\text{jumlah nyamuk menggigit orang}}{\text{Jumlah waktu penangkapan } (\frac{\text{jam}}{\text{orang}})}$$

Kepadatan	Sohuwe	Lumalata	Maloang
Nyamuk	7.00- 9.85	5.89 - 6.82	5.00- 6.50
Ket	Tinggi	Tinggi	Sedang

Gandahusada (2000) states *Anopheles* mosquitoes choose a place of rest in the house or endophilic and outside the home or exophilic. Rehena (2005) states that the determination of the malaria vector in the Uraur village of Kairatu Village, Kairatu District, found 3 species of *Anopheles* mosquitoes namely *Anopheles aconitus*, *Anopheles subpictus* and *Anopheles balanbacensis*. Natural containers are mostly found in forest areas or plantation areas, but natural containers are also found in many other places, such as areas where trees have been cut down, bamboo segments, coastal areas where there are many coconut shells. Species that have natural container habitat are *Anopheles* sp (Rattanaarithikul and Harisson, 2005).

#### - Rates of Filariasis Disease (Prevalence)

$$\text{Prevalensi Rate (PR)} \frac{\text{jumlah penderita lama/baru pada periode tertentu}}{\text{penduduk yang mempunyai resiko filariasis}} \times 100\%$$

1. Prevalensi Rate (PR)Desa Sohuwe =  $\frac{6}{909} \times 100\% = 0,66$
2. Prevalensi Rate (PR)Desa Lumalatal =  $\frac{5}{570} \times 100\% = 0,88$
3. .Prevalensi Rate (PR)Desa Maloang =  $\frac{4}{260} \times 100\% = 1,54$  .

#### - Relationship between Public Attitudes and Behavior With Filariasis Disease

There is a significant relationship between the habits of the people with the prevalence of Filariasis disease. One of the causes of filariasis transmission is a factor of community habits in endemic areas. The results showed that poor knowledge, poor attitudes and behaviors would lead to a greater risk of developing filariasis than those who had better knowledge, attitudes and behaviors in preventing filariasis. From the results of the above research it is recommended to intervene by way of counseling through lectures and posters to improve the knowledge, attitudes and behavior of the local community (Ahmad E, Ningsi N, Malonda M, Puryadi P, 2015).



**Tabel 9. The Relationship Between Attitudes and Behavior with the Occurrence of Filariasis**

No	Sikap dan Perilaku Membasmi Nyamuk	Kejadian Filariasis				Jumlah		<i>p value</i>
		Filariasis		Tidak Filariasis				
		n	%	n	%	N	%	
1	Tidak Pakai Obat	14	24.1	44	75,9	58	100	0,010
2	Pakai Obat Nyamuk, Baigon dll	1	3,1	31	96,9	32	100	
	Total	15	27,2	75	172,8	90	200	

**Tabel 10. Relationship between Attitudes and Behavior of Hanging Clothes with the Event of Filariasis**

No	Sikap dan Perilaku Menggantung Pakaian	Kejadian Filariasis				Jumlah		<i>p value</i>
		Filariasis		Tidak Filariasis				
		n	%	n	%	N	%	
1	Menggantung Pakaian Dalam Rumah	13	26,5	36	73,5	49	100	0,006
2	Tidak Menggantung Pakaian Dalam Rumah	2	4,9	39	95,1	41	100	
	Total	15	31,4	75	168,6	90	200	

**Tabel 11. Relationship between Attitudes and Behavior of Traveling Outside the Home in the Community with the Incidence of Filariasis**

No	Kebiasaan Berpergian Masyarakat ke Luar Rumah	Kejadian Filariasis				Jumlah		<i>p value</i>
		Filariasis		Tidak Filariasis				
		n	%	n	%	N	%	
1	Kebiasaan Berpergian Keluar rumah	8	30,8	18	69,2	26	100	0,022
2	Tidak Biasa Keluar Rumah	7	10,9	57	89,1	64	100	
	Total	15	41.7	75	158,3	90	200	



**Tabel 1.12. Relationship between Behavior and Habits of Filariasis Drug Usage with Filariasis Occurrence**

No	Kebiasaan Penggunaan Obat	Kejadian Filariasis				Jumlah		<i>p value</i>
		Filariasis		Tidak Filariasis				
		n	%	n	%	N	%	
1	Menggunakan Obat Filariasis	6	9,8	55	90,2	61	100	0,012
2	Tidak Menggunakan Obat Filariasis	9	31,0	20	69,0	29	100	
	Total	15	40,8	75	159,2	90	200	

From the table above shows that the relationship between attitudes and behavior of people with the prevalence of filariasis there is a relationship, this is due to the attitudes and behavior of the community in this case the use of filariasis drugs, hanging clothes and traveling out of the house is very good, but the prevalence value of filariasis is still low, this is because it is also influenced by environmental factors of mosquito mansonias and anopheles. Mosquitoes that have managed to get blood by biting animals or humans will return to rest in breeding places and lay their eggs on aquatic plants. A female mosquito can produce 100-200 eggs and incubate 75 to 150. Notoatmojo (2011) explains that genetic and environmental factors are determinants of the behavior of living things including human behavior. Heredity or heredity is the basic conception of the development of human behavior, while the environment is the condition or land for the development of behavior.

## b. Discussion

The theory of reasoned action says that attitude influences behavior through a process of taking a thorough and reasonable decision and its impact is limited to only three things namely, behavior is not much determined by general attitudes but by specific attitudes towards something, behavior is influenced not much by attitude but also by subjective norms, namely our beliefs about what others remind us to do. Attitudes toward behavior along with subjective norms form an intention or intention to behave in a certain way. Behavior broadly, certainly can not only be reviewed in relation to human attitudes. Discussion of behavior from the perspective of motivation theory, from learning theory and from other points of view will give different emphasis (Azwar, 1995). Significantly, all mosquitoes must have enough water to complete their life cycle. Mosquitoes can live in almost all types of water, from melted ice water to dirty waste water. The type of water can identify the type of mosquito larvae that live in it. Also, adult mosquitoes show very different preferences for the type of egg-laying source. They lay eggs periodically and will continue in water holes, ponds, tides, swamps, sewage disposal, ponds, pasture irrigation, rainwater pools, etc. Therefore each species has unique environmental requirements for life cycle maintenance (Soedarto, 1989). The density of *Mansonia* mosquitoes experiences moderate conditions, whereas *Anopheles* experiences high conditions. From this density condition, mosquitoes can find filarial to be included in the blood. While the prevalence of filariasis is still low.

The results showed that in the districts of East Taniwel and Taniwel, many natural *Anopheles* sp breeding habitats were found in the form of swamps, swamps that were

overgrown with mangrove trees at the edges, ditches and pools. *Anopheles letifer* and *Anopheles sundaicus* larvae are found in swamps and swamps that are overgrown with mangrove trees at the edges with characteristic water; pH: 5-7.5, temperature: 28-33°C and salinity: 0-28 ‰. *Anopheles* sp mosquitoes found in East Taniwel and Taniwel Districts have only 1 (one) type, *Anopheles sundaicus*, while *Anopheles letifer* is only found in the larval stage. *Anopheles. Sundaicus* actively bites all night inside and outside the house with peak activity at 02.00-03.00.

From the results of the study showed that *Mansonia* is one of the genus of mosquitoes that play a role in the transmission of filariasis in Indonesia. This study aims to determine the diversity of *Mansonia* mosquitoes in filariasis transmission in Gulinggang Village, Balangan Regency, South Kalimantan Province. The survey research was carried out in Gulinggang Village which is a filariasis endemic village, from January to May 2015 with cross sectional data collection. The study used 3 houses contained filariasis sufferers. Catching mosquitoes is done by the Bare Leg Collection method. Arrests were carried out inside and outside the house from 6:00 to 6:00 p.m. Blood collection is done on domestic domestic cats for local microfilaria examination. The results showed five species of mosquitoes, namely *Ma. uniformis*, *Ma. dives*, *Ma. annulifera*, *Ma. annulata*, and *Ma. bonneae*. *Ma uniformis* is the mosquito that most caught in the house that is equal to 37.99% while the *Ma* mosquito. many dives are caught outside the home which is 56.80%. The peak density of the *Ma. uniformis* mosquito sucks people's blood inside the house at 18: 00-18: 45, while outside the house at 20: 00-20: 45. *Ma* The dives have a peak density at 7:00 p.m. to 19:45. A total of 10 cats were blood-tested, showing that there were 8 microfilariae. (Supri Supriyono et al, 2017).

There is a significant relationship between attitudes and behavior of the community with the prevalence of filariasis in Taniwel District and East Taniwel District, West Seram District. In October 2019 the Government of Indonesia and the Indonesian Ministry of Health will provide the drugs Dietil Carbamazepine (DEC), Albendazol and Paracetamol for Filariasis sufferers throughout Indonesia, including in the Taniwel District. This is intended free of charge in all health centers that function to kill all types of worms from the body. On the other hand we hope that people come to the nearest puskesmas to be given medicine. Giving the drug will be done through a complete examination. For prevention, it will be given to healthy (Sembel, 2009).

The results showed that the study of several aspects of *Anopheles barbirostris* malaria vector behavior in Central Sumba Regency was conducted in July - October in 2 Subdistricts namely Umbu Ratu Subdistrict (D

#### 4. Conclusion

Use a mosquito repellent lotion or carry a mosquito racket before going out at night. If the house is in an endemic environment, do 3M and install a wire mesh around the ventilation window and use abate powder in the puddle area. The density of *Mansonia* Mosquitoes in Sohua Village 4.00 - 5.85, Lamalata 5.00 - 6.60 and Maloang Village 4.00 - 6.20. While *Anopheles* Mosquito in Sohua Village 7.00-9.85. Lamalata 5.89 - 6.82 and Maloang 5.00-6.50.

This causes Filariasis to continue to develop in East Taniwel and Taniwel. The prevalence rate of Filariasis in Sohua Village was 0.66, Lamalatal was 0.88, while in Maloang Village it was 1.54. This prevalence is still small, compared to Filariasis. There is a significant relationship between community attitudes and behavior with the incidence of Filariasis in East Taniwel District and Taniweal in West Seram District.

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